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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,228	08/03/2006	Yutaka Shibata	4633-0178PUS1	5415

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BIRCH STEWART KOLASCH & BIRCH  
PO BOX 747  
FALLS CHURCH, VA 22040-0747

EXAMINER
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WALBERG, TERESA J

ART UNIT	PAPER NUMBER
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3744

NOTIFICATION DATE	DELIVERY MODE
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08/12/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/588,228	<b>Applicant(s)</b> SHIBATA ET AL.	
	<b>Examiner</b> Teresa J. Walberg	<b>Art Unit</b> 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 May 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 5-7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hughes et al (2004/0154787) in view of McLain (3,902,552) and Huet (3,154,141).

Hughes discloses a hot water supply heat exchanger (Fig. 1) including a water pipe (14) forming a water passage and a refrigerant pipe (32) forming a refrigerant passage, the hot water supply heat exchanger being for heating water flowing through the water passage by a refrigerant flowing through the refrigerant passage (see abstract), an inlet part of the water passage having water of a predetermined temperature or less is provided with a heat transfer enhancer (52 in Fig. 4) or a heat transfer enhancement pipe section (52 in Fig. 4), the enhancer being spiral grooves formed in the inner surface of the water pipe (52 in Fig. 4), the refrigerant pipe being connected to the periphery of the water pipe (Fig. 1).

Hughes does not disclose the passage being an ellipse.

It is conventional in the art to make fluid flow tubes in many different shapes including ellipses. It would have been obvious to one of ordinary skill in

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the art to use an ellipse shaped to rather than a round tube in the heat exchanger of Hughes et al, as an obvious substitution of one known pipe shape for another.

Hughes does not disclose the passage having a heat transfer enhancer provided on only an inlet part of the fluid passage.

McLain discloses heat transfer tubing having heat transfer enhancement such as texturing in some areas and not others. See Figs. 1-3.

Huet discloses heat transfer tubing having an increased amount of heat transfer enhancement texturing on an inlet part of the fluid passage.

It would have been obvious to one of ordinary skill in the art in view of McLain and Huet to provide a heat transfer enhancer on only an inlet part of the fluid passage, the motivation being to increase heat transfer only in the desired location.

3. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daikin (JP 2003-97898) in view of Hitachi (JP 9-72683) and further in view of McLain (3,902,552) and Huet (3,154,141).

Daikin discloses a hot water supply heat exchanger (Fig. 1) including a water pipe (9) forming a water passage and a refrigerant pipe (10) forming a refrigerant passage, the hot water supply heat exchanger being capable of heating water flowing through the water passage by a refrigerant flowing through the refrigerant passage, a plurality of heat exchanger units stacked one above another and connected to form continuous passages (Fig. 1), the refrigerant pipe being connected to the periphery of the water pipe (Fig. 1).

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Daikin does not disclose an inlet part of the water passage being provided with a heat transfer enhancer, the heat transfer enhancer being spiral grooves. Hitachi discloses providing spiral grooves as a heat transfer enhancer in the inner surface of a heat exchange pipe. It would have been obvious in view of Hitachi to provide spiral grooves in the inner surface of the pipe of Daikin as a heat transfer enhancer, the motivation being to increase the rate of heat transfer.

Daikin in view of Hitachi do not disclose the passage being an ellipse. It is conventional in the art to make fluid flow tubes in many different shapes including ellipses. It would have been obvious to one of ordinary skill in the art to use an ellipse shaped to rather than a round tube in the heat exchanger of Daikin in view of Hitachi, as an obvious substitution of one known pipe shape for another.

Daikin in view of Hitachi do not disclose the passage having a heat transfer enhancer provided on only an inlet part of the fluid passage.

McLain discloses heat transfer tubing having heat transfer enhancement such as texturing in some areas and not others. See Figs. 1-3.

Huet discloses heat transfer tubing having an increased amount of heat transfer enhancement texturing on an inlet part of the fluid passage.

It would have been obvious to one of ordinary skill in the art in view of McLain and Huet to provide a heat transfer enhancer on only an inlet part of the fluid passage, the motivation being to increase heat transfer only in the desired location.

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4. Applicant's arguments filed 13 May 2009 have been fully considered but they are not persuasive.

Applicant argues that the device is used with liquid having an entry temperature at which scale is not deposited and that the entry texturing increases heat transfer, while the lack of texturing in the downstream portions of the tubes prevents scale deposition. However, patentability can not be based on the intended use of the device, on the reasons for providing the claimed structure, or on the liquids with which the device is intended to be used, but must instead must be based on structural differences. The applied references, as noted above, disclose or render obvious the claimed structure of the device. That applicant used this structure for a different purpose is not considered to render the claims.

The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

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5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Zaslavsky et al (para. 327, "grooving of the inlet surface") and Kogure et al are cited to show flow passage inlet texturing.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Teresa J. Walberg/  
Primary Examiner, Art Unit 3744

/TW/